PROC. BIOL. SOC. WASH.
91(1), 1978, pp. 203–215

TWO NEW SPECIES OF *CALLOGOBIUS* FROM INDO-PACIFIC WATERS (TELEOSTEI: GOBIIDAE)

James F. McKinney and Ernest A. Lachner

Abstract.—Two new species of *Callogobius* are described: *C. hastatus* from the Palau Islands, Philippine Islands and the South China Sea, a species which is unique among the *Callogobius* complex in having no cephalic sensory pores; and *C. clitellus* from New Guinea, the Solomon Islands and the Philippine Islands, which differs greatly from all other nominal *Callogobius* species in its distinctive coloration. Twenty-nine nominal species and the two species described herein are currently considered by us as belonging to the *Callogobius* complex. Selected important characters for the 31 species of *Callogobius* are tabulated. The new species are compared and contrasted within this generic complex.

In our studies of the *Callogobius* complex, we encountered two new species that differ strikingly from all nominal forms; one species lacks all cephalic sensory pores, a unique character in the group, and the other has a distinctive bicoloration. We herein describe the two species.

In order to facilitate comparisons of the two new species with other members of the *Callogobius* complex, we include data in Table 1 taken from type and non-type specimens or published accounts of all nominal species that we currently recognize as belonging to this complex. All of the species listed in Table 1 are characterized in having fleshy papillose ridges on the head (see Figs. 2–4). We recognize that this assemblage may comprise more than one genus. A few of these nominal species ultimately may be placed in synonymy. Five nominal species originally described in *Callogobius* are not included in this generic complex because they lack the fleshy papillose head ridges, namely *C. atratus* Griffin, *C. liolepis* Koumans, *C. melanoptera* Visweswara Rao, *C. ocellatus* Herre and *C. seshaiyai* Jacob and Rangarajan. These five nominal species will be relegated to other genera in our subsequent studies.

Methods

The methods of taking and recording data are given in Lachner and McKinney (in press). Our references to the sensory pore and canal system follow Lachner and McKinney (1974). In Table 1 we give the number of scales in the lateral series often as a range for a single specimen, for example a holotype, because of the difficulty in duplicating the same count. Where the counts for the dorsal and anal fin rays were given in the original description as one number, for example 11 rays, we interpret

Table 1. Comparison of certain characters of the *Callogobius* complex. Data from holotypes (H), syntypes (S), paratypes (P), nontype specimens (N), or original and subsequent descriptions (D).

Nominal species	Source of data	Second dorsal fin rays	Anal fin rays	Scale type	Scales in lateral series	Scales on predorsal midline	Scale focus	Vertebrae	Temporal sensory canal
Callogobius andamanensis Menon and Chatterjee	P	I,11–I,12	I,10	cycloid	50–60	present	narrow	10 + 16	absent
Callogobius centrolepis Weber	H	I, 9	I, 7	ctenoid	23–25	present	broad	10 + 16	absent
Callogobius clitellus new species	H,P	I,10	I,8–I, 9	cycloid	46–48	present	narrow	10 + 16	absent
Callogobius hastatus new species	H,P	I,9–I,11	I,7–I, 9	cycloid	32–37	absent	narrow	10 + 16	absent
Callogobius mannarensis Rangarajan	P,N	I,9–I,11	I,7–I, 9	cycloid	33–35	absent	narrow	11 + 15	absent
Callogobius shunkan Takagi	H,N	I,10	I, 8	ctenoid	22–24	present	broad	10 + 16	present
Callogobius snelliusi Koumans	S	I, 9	I, 7	ctenoid	21–23	present	broad	10 + 16	present
Callogobius trifasciatus Menon and Chatterjee	P	I, 9	I, 8	ctenoid	28–30	present	variable	10 + 16	absent
Doryptena okinawae Snyder	H	I,11	I, 8	cycloid	46–48	absent	narrow	11 + 16	absent
Doryptena synderi Fowler	H	I,10	I, 8	cycloid	42–44	present	narrow	10 + 16	absent
Doryptena tanegasimae Snyder	H	I,14	I,12	cycloid	70–80	absent	narrow	12 + 18	absent
Drombus irrasus J. L. B. Smith	H,P	I, 9	I, 7	ctenoid	24–26	present	broad	10 + 16	present
Drombus maculipinnis Fowler	H,N	I, 9	I, 7	ctenoid	20–22	present	broad	10 + 16	present
Drombus tutuilae Jordan and Seale	H	I, 9	I, 7	ctenoid	27–29	present	variable	10 + 16	absent
Drombus plumatus J. L. B. Smith	H	I, 9	I, 7	ctenoid	22–24	present	broad	10 + 16	absent?
Eleotris hasseltii Bleeker	S	I,10	I, 8	ctenoid	41–43	present	variable	10 + 16	absent
Eleotris sclateri Steindachner	H	I, 9	I, 7	ctenoid	30–32	present	broad	10 + 16	absent
Galera producta Herre	N	I,12–I,13	I,10–I,11	cycloid	63–67	absent	narrow	11 + 17	absent
Gobiomorphus illotus Herre	D	I, 9	I, 8	ctenoid	ca. 30	present?	—	—	—
Gobius coelidotus Sauvage	H	I,10	I, 8	ctenoid	41–43	present	variable	10 + 16	absent
Gobius depressus Ramsey and Ogilby	H	I,11	I, 9	weakly ctenoid	35–37	present	variable	10 + 17	absent
Gobius mucosus Günther	H	I,11	I, 9	cycloid	39–41	present	broad	10 + 17	absent
Gunnamatta insolita Whitley	H	I,11	I, 9	weakly ctenoid	42–44	present	variable	10 + 17	absent
Intonsagobius kuderi Herre	H,P	I, 9	I, 7	ctenoid	25–27	present	broad	10 + 16	present

Table 1. Continued.

Nominal species	Source of data	Second dorsal fin rays	Anal fin rays	Scale type	Scales in lateral series	Scales on predorsal midline	Scale focus	Vertebrae	Temporal sensory canal
Intonsagobius vanclevei Herre	H	I, 9	I, 7	ctenoid	21–23	present	broad	10 + 16	present
Macgregorella badia Herre	H,P	I,10	I, 8	ctenoid	48–50	present	variable	10 + 16	absent
Macgregorella intonsa Herre	D	I,10	I, 8	cycloid	38–40	present?	—	—	absent?
Macgregorella moroana Seale	D	I,10	I, 8	cycloid	46–50	present	—	—	—
Macgregorella santa Herre	H	I,10	I, 9	cycloid	46–48	present	narrow	10 + 16	absent
Mucogobius bifasciatus J. L. B. Smith	H	I,10	I, 9	cycloid	35–38	present	—	10 + 16	—
Mucogobius flavobrunneus J. L. B. Smith	H,P	I, 9	I, 8	ctenoid	35–37	present	broad	10 + 16	absent

this count to be I,10. Obvious abnormal vertebral counts were not included in the column giving vertebral numbers.

In the descriptive accounts the values for meristic characters are followed by frequencies of counts in parentheses. The frequency that includes the value for the holotype is italicized.

Callogobius hastatus, new species
Figs. 1–4, Table 2

Holotype.—USNM 216811, male (28.2 mm SL), Palau Islands, 07°20′36″N; 134°28′13″E, W end Koror Island, S end of Arakabesan-Madalai causeway, Madalai District, collected by H. A. Fehlmann and company, GVF Reg. No. 511, 9 July 1955.

Paratypes.—South China Sea: CAS 38924, male (19.3), 12°11′33″N; 109°19.5′E, Viet Nam, Hon Lon Island at entrance to Nha Trang Bay, H. A. Fehlmann and company, GVF Reg. No. 2791, 1 February 1961.

Philippine Islands: USNM 99293, male (28.9), Mactan Island reef opposite Cebu, "*Albatross*" collection, 7 April 1908; USNM 99294, 5 males (18.7–27.7), 7 females (18.6–24.4), same data as USNM 99293; AMS I.19603-001, male (25.3), female (22.2), same data as USNM 99293; USNM 99570, female (18.8), Mindanao, Cascade River, Murcielagos Bay, "*Albatross*" collection, 20 August 1909; USNM 139323, female (20.5), Mactan Island, "*Albatross*" collection, 31 August 1909.

Palau Islands: CAS 38925, male (16.8), female (21.6), unsexed (14.7), same data as holotype; CAS 38926, 3 males (18.3–26.4), female (23.4), 07°20′22″N, 134°28′05″E, Koror Island, Madalai District, H. A. Fehlmann and company, GVF Reg. No. 509, 8 July 1955; CAS 38927, 3 males (15.2–19.9), female (17.9), 07°19′20″N, 134°30′13″E, Koror Island, Iwayama Bay, H. A. Fehlmann and company, GVF Reg. No. 532, 23 July 1955; CAS 38928, 3 males (21.8–24.1), 07°19′36″N, 134°29′06″E, SE tip of Koror Island, M. Brittan and company, GVF Reg. No. 814, 25 July 1956; CAS 38929, male (23.2), female (22.2), 07°18′58″N, 134°29′32″E, Iwayama Bay, H. A. Fehlmann and company, GVF Reg. No. 546, 28 July 1955; CAS 38930, 3 males (16.6–20.5), 07°20′13″N, 134°27′50″E, Auluptagel Island, H. A. Fehlmann and company, GVF Reg. No. 1414, 7 October 1957; CAS 38931, 15 males (17.0–21.5), 18 females (14.7–19.7), 2 unsexed (13.8–14.4), 07°23′28″N, 134°30′32″E, off Babelthaup Island, H. A. Fehlmann and company, GVF Reg. No. 1397, 22 September 1957; USNM 216812, 3 males (19.0–24.0), 3 females (15.7–17.9), same data as CAS 38931; CAS 38932, 2 males (18.4, 20.7), 07°20′55″N, 134°28′00″E, Arakabesan Island, collected by Sumang, GVF Reg. No. 1995, 1 November 1959.

Yap Islands: CAS 38933, male (16.0), 09°30′30″N, 138°07′49″E, Yap Island, Tomil Harbor, collected by Sumang and Bapilung, GVF Reg. No. 1903, 8 December 1959; CAS 38934, 3 males (21.6–27.1), 09°34′33″N,

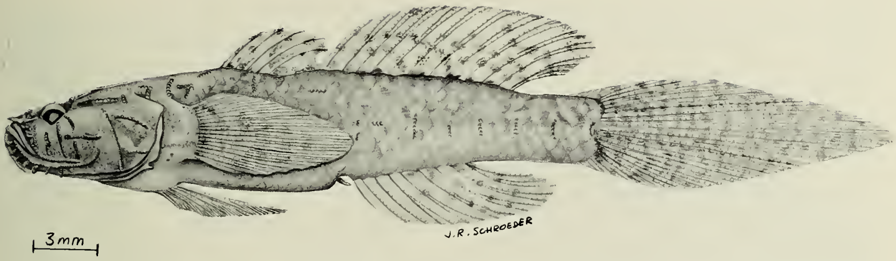

Fig. 1. *Callogobius hastatus*, USNM 99294, paratype, male, 26.4 mm SL, Philippine Islands.

138°09′24″E, W side of Map Island, collected by Bapilung and Manggur, GVF Reg. No. 1910, 16 December 1959; CAS 38935, male (17.0), female (19.3), 09°33′04″N, 138°06′30″E, Atelu district of W Yap Island, collected by Sumang and company, GVF Reg. No. 1927, 30 December 1959.

Diagnosis.—A species unique among *Callogobius* because it lacks cephalic sensory pores. Differs from most nominal *Callogobius* species in having

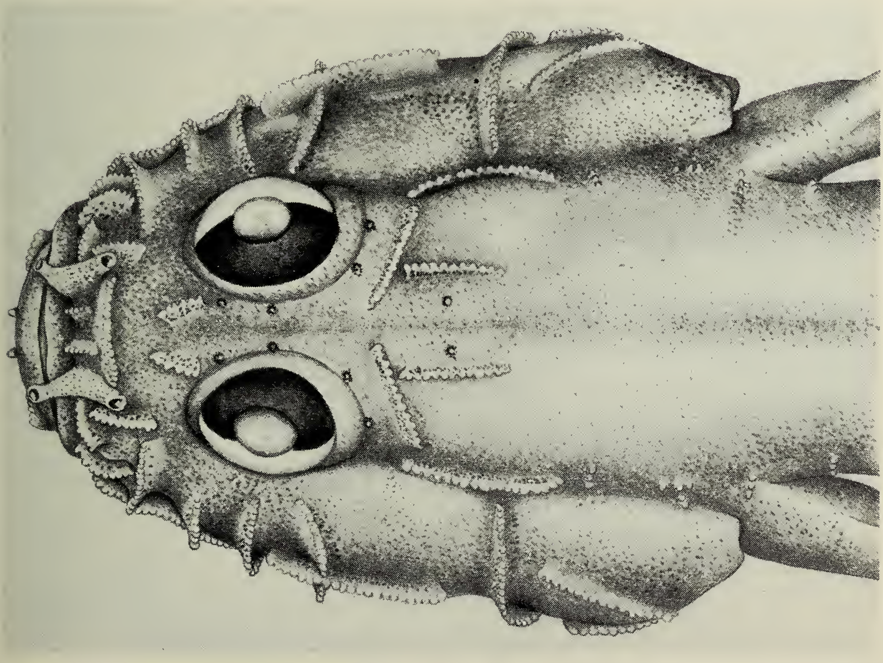

Fig. 2. Details of head of *Callogobius hastatus* showing papillose ridges; USNM 216811, holotype, male, 28.2 mm SL, Palau Islands.

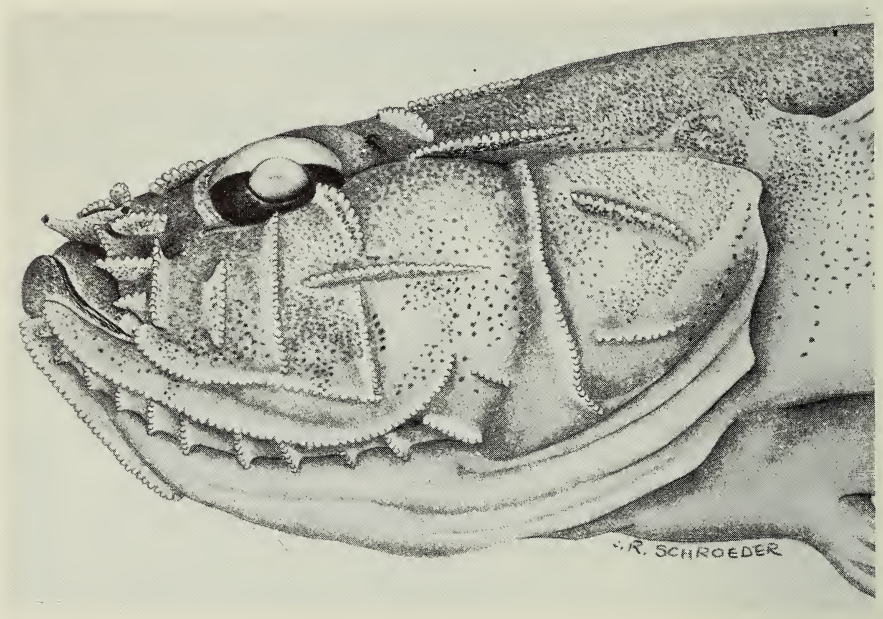

Fig. 3. *Callogobius hastatus*, data as in Fig. 2.

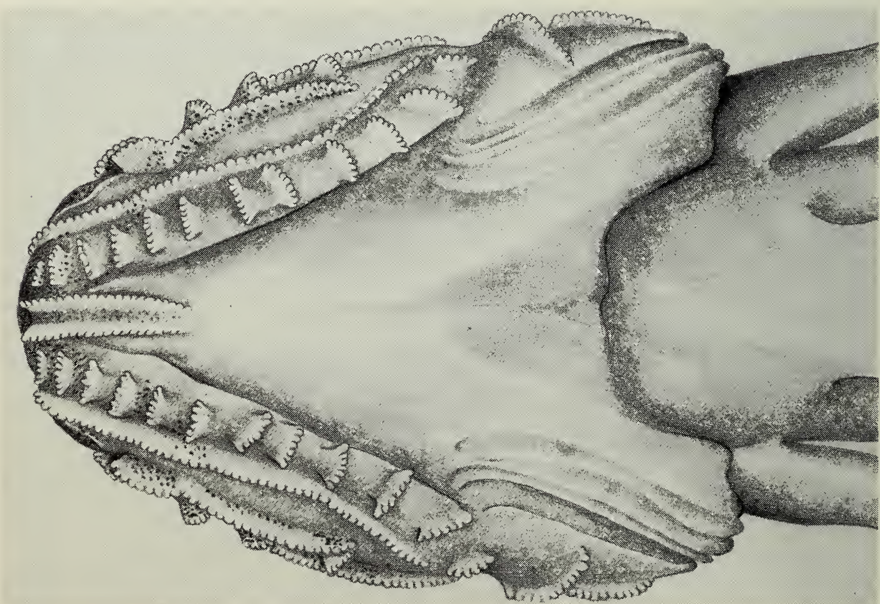

Fig. 4. *Callogobius hastatus*, data as in Fig. 2.

cycloid scales. Other distinctive features include absence of predorsal scales, an elongate caudal fin, a finely mottled and spotted color pattern, and intermediate size scales, numbering 32–37 in lateral series.

Four other nominal species of the *Callogobius* complex agree with *C. hastatus* in having only cycloid scales on the body and in lacking predorsal scales, *Callogobius mannarensis*, *Galera producta*, *Dorytptena tanegasimae* and *Doryptena okinawae*. Aside from the fact that these four species possess sensory pores, *C. mannarensis* differs mainly from *C. hastatus* in usually having 11 + 15 vertebrae rather than 10 + 16 and a distinctly barred color pattern; *G. producta* has very small scales, about 70 in lateral series, and high dorsal and anal fin counts, VI-I,13 and I,11 respectively; *D. tanegasimae* also has about 70–80 small scales in lateral series, has very high dorsal and anal fin ray counts, VI-I,14 and I,12 respectively, a high vertebral count of 12 + 18, and has distinct dark trunk saddles; and *D. okinawae* has a higher number of vertebrae, 11 + 16, smaller scales, 46–48, and a different color pattern.

Description.—Dorsal rays V-I,10(2), V-I,11(1), VI-I,9(5), VI-I,10(*36*), VI-I,11(1), VII-I,9(1); anal rays I,7(2), I,8(18), I,9(*26*); pectoral rays 15(8), 16(*56*), 17(6); pelvic rays I,5(15); segmented caudal rays 16(4), 17(*29*); branched caudal rays 14(1), 15(*23*), 16(6), 17(3); lateral scale rows 32–37(9); transverse scale rows 12–15(9); predorsal scales absent.

Scales cycloid, smaller anteriorly than posteriorly on trunk; scales eccentric, focal area narrow and oval-shaped; 15–21 primary radii and 1–3 secondary radii in large anterior field, 4–9 short primary radii and no secondary radii in small posterior field; radius of posterior field about one-sixth to one-seventh that of anterior field.

Vertebrae 10 + 15(1), 10 + 16(*39*), 10 + 17(1), 11 + 16(1); pterygiophore formula 3(22110) *30* specimens, 3(22100) 1, 3(20210) 1, 3(221101) 1.

Measurements for the holotype and five paratypes are given in Table 2.

A small species of *Callogobius*, males exceeding females in body length, largest male 28.9 mm, largest female 24.4 mm. Head moderately wide, somewhat depressed; trunk slender; interorbital narrow, less than one-half diameter of eye; lower jaw protruding, gape oblique (Fig. 3), jaw length short, not reaching vertical from anterior margin of eye; nares close together, anterior nares opening at tip of long tube, posterior nares opening at tip of short tube; tongue truncate; gill opening moderate, extending just below lower insertion of pectoral fin; first dorsal fin not as high as second dorsal fin and its posterior membrane weakly connected to base of spine of second dorsal fin; origin of second dorsal fin above anal opening; adpressed pectoral fin extends posteriorly to or slightly beyond vertical from origin of second dorsal fin; pectoral fin longer than deep, the posterior margin somewhat pointed; pelvic fin short, adpressed fin extends posteriorly just beyond midway from insertion of pelvic fin to origin of anal fin; pelvic frenum moderately developed, inner rays of pelvic fins joined nearly to their tips; anal fin almost as high as second dorsal fin; caudal fin elongate, spear-shaped, much longer than head length. Genital papilla in male tube-like, tapering, wider than deep; broad, bulbous and wider than deep in female.

Teeth of jaws small, pointed, canine-like, in a patch of three to four rows in each jaw, those of outer row slightly larger; no vomerine or palatine teeth.

The size, shape and distribution of the fleshy, papillose ridges dorsally, laterally and ventrally on the head are depicted in Figs. 2–4. Short, vertical rows of papillae present on mid-side of trunk, a few short horizontal rows dorso-laterally on anterior trunk and some short rows above pectoral base; three rows of fine papillae parallel lower margins of sixth and ninth caudal rays and upper margin of twelfth caudal ray.

There are no cephalic pores, but coarse, dark papillae (Fig. 2) are located between and behind the eyes in the areas occupied by the sensory canal system in other *Callogobius* species. There is also a coarse, dark papilla on each side of the midline, dorsally on the head.

Color in preservation.—Head and trunk mottled with small, brownish, irregular spots, as large as or larger than pupil. Head dorsally and laterally with irregular brown mottling; larger patches of brown coloration on preopercle and opercle; papillose ridges on head and cheek usually bicolored black and light but may be uniformly brownish (the typical mottled pattern is not shown in Fig. 2); lower portion of head uniformly pale. Trunk with numerous small, irregular brownish spots over a light to pale background (most specimens more darkly pigmented than shown on Fig. 1); breast and belly to origin of anal fin uniformly pale. Median fins with numerous small brown spots, which sometimes coalesce to form irregular bars or stripes. Spots on first dorsal fin darkest near bases of fourth and sixth spines, where they coalesce with spots dorsally on trunk that are about the size of eye (not developed on illustrated specimen). Three to four rows of small brownish spots on second dorsal fin, usually more heavily developed and larger at bases of third, fourth, sixth, seventh, eighth and ninth soft rays; usually these spots coalesce to form three saddle-like marks, similar to marks at base of first dorsal fin. Anal fin occasionally with three to four rows of small brown spots, usually on rays of posterior half; a few specimens with entire anal fin spotted; sometimes anal fin completely clear. Caudal fin profusely spotted with small brown marks arranged in about 8–11 irregular rows from its base to its tip; more diffuse in some specimens than others and entirely absent in some. Base of caudal fin with irregular bar, sometimes divided into upper, middle and lower basi-caudal spots. Pectoral fin with large brown spots or mottling on fleshy base and on proximal third of fin rays, the pigmentation sometimes more pronounced on base of upper rays; outer two-thirds of rays with about 4 light brownish irregular bars, obsolete in some specimens. Pelvic fin clear.

We observe differences in pigmentation between the Philippine and Palau populations, where our material is most abundant. Most Palau specimens have reduced pigmentation on the distal portions of the pectoral and caudal fins, and the anal fin is mostly clear compared to the Philippine specimens. Also, the mid-dorsal saddle-like blotches are larger and more pronounced on the Palau specimens compared to the Philippine specimens. Our material is too limited geographically to analyze the systematic significance of this variation.

Geographic distribution.—Taken at Viet Nam (South China Sea), Cebu and Mindanao Islands of the Philippine Islands, Palau Islands and Yap Islands.

Ecology.—The field data for 8 stations in the Palau Islands, 3 stations in the Yap Islands and 1 at Viet Nam are consistent in describing the ecology and nature of the habitat. The species was always taken in shallow water, up to about 3 m. Sand and broken coral, silt and patches of live coral, with some algae and eel grass was almost always listed as the predominate items on the bottom. Some of the patches of sand, silt, and broken coral reefs graded into shores of mangrove. Clay, mud and dead coral boulders were also described as occurring in one locality.

Etymology.—The specific epithet is taken from the Latin, *hastatus*, in reference to the spear shape of the caudal fin.

Remarks.—In the description above, we list three specimens with five and one specimen with seven spines in the first dorsal fin, an unusual variation in gobioid fishes. Correlated with these variations are the differences in the pterygiophore formula given in the description. The specimen with the 3(22100) formula lacks the sixth element of the first dorsal fin. The specimen with the 3(20210) formula lacks the third spine and pterygiophore and the fourth pterygiophore is inserted in the fifth interneural space rather than in the fourth. The third five-spined specimen lacks the last spine of the first dorsal fin, but the associated pterygiophore is present, resulting in a normal formula. The specimen that exhibits the pterygiophore formula of 3(221101) has an extra spine and pterygiophore at the end of the first dorsal fin, and it also has an extra pre-caudal vertebra.

Callogobius clitellus, new species

Fig. 5, Table 2

Holotype.—USNM 209249, male (30.2 mm), New Guinea, Madang Harbor, Bay in Krankett Island, collected by B. B. Collette, Sta. No. BBC-1495, 30 May 1970.

Paratypes.—USNM 99574, male (37.6), Philippine Islands, "*Albatross*" collection, no additional data; USNM 211935, one specimen (16.9), Banda Islands, 04°20′30″S; 129°54′20″E, SE coast of Naira Island, collected by V. G. Springer and M. F. Gomon, VGS Sta. 74-9, 8 March 1974; USNM

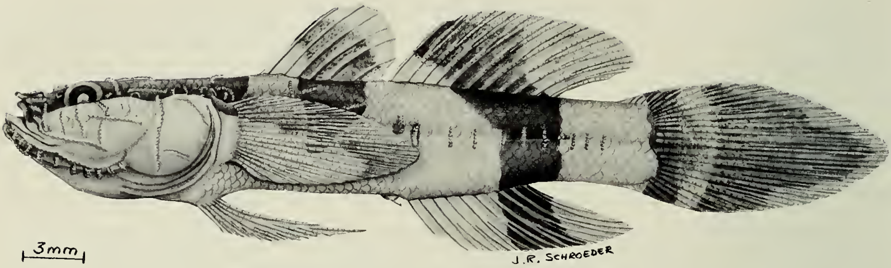

Fig. 5. *Callogobius clitellus*, USNM 209249, holotype, male, 30.2 mm SL, Madang Harbor, New Guinea.

209252, one specimen (17.8), Solomon Islands, Bougainville, Tautsina Island, E of Kieta Peninsula, collected by "*Te Vega*" Cr. 6, Sta. 247, 11 March 1965; BPBM 9591, male (27.8), Palau Islands, one-fourth mi SW of entrance to Malakal Pass, collected by J. E. Randall and company, 17 April 1970.

Diagnosis.—*C. clitellus* differs from most *Callogobius* species in having only cycloid scales on the body and trenchant bicoloration. In these characters, *C. clitellus* resembles *C. bifasciatus* (J. L. B. Smith), but differs mainly from the latter in having a distinct horizontal stripe through the eye, a prominent predorsal saddle, a cresent-shaped dark mark on the upper pectoral fin, and a prominent spear-shaped mark on the caudal fin. *C. bifasciatus* has dark oblique marks on the cheek and opercle that are lacking in *C. clitellus*. *C. bifasciatus* is a larger-scaled species, having about 35–38 in lateral series and 14–16 before the dorsal fin, while *C. clitellus* has 46–48 scales in lateral series and about 24 predorsal scales. Other species of the *Callogobius* complex that are entirely cycloid-scaled forms (Table 1) are variously mottled or lack outstanding bicoloration.

Description.—Dorsal rays VI-I,10(5), anal rays I,8(3), I,9(2); pectoral rays 17(9); pelvic rays I,5(5); segmented caudal rays 17(5); branched caudal rays 15(4), 16(1); lateral scale rows about 46–48(2); transverse scale rows about 24(2); predorsal scales about 24(2).

Scales cycloid, those on anterior trunk about one-half size of those on caudal peduncle, the scale highly eccentric, the focus narrow; anterior trunk scales with 10–12 radii, 0–2 secondary radii in large anterior field, no radii in posterior field; scales on caudal peduncle with 15–18 primary radii, no secondary radii in large anterior field, 0–4 short radii in small posterior field. Small scales present on nape to just behind eyes, on upper opercle, preopercle, on cheeks to level of vertical through anterior margin of eye, and on breast, belly and fleshy base of pectoral fin.

Vertebrae 10 + 16(5); pterygiophore formula 3(22110) in 4.

Table 2. Selected measurements, expressed as thousandths of SL, of type specimens of two new species of *Callogobius*.

	hastatus			*clitellus*	
		paratypes			paratypes
Character	holotype	males $N = 2$	females $N = 3$	holotype	males $N = 2$
Standard length (mm)	28.2	24.1–28.9	21.6–24.4	30.2	27.8–37.6
Head length	259	257–266	282–292	331	293–327
Snout length	64	62–66	59–65	83	74–86
Bony interorbital width	18	14–15	13–19	17	16–18
Greatest diameter of orbit	50	50–55	57–60	70	64–72
Upper jaw length	74	71–83	74–82	89	82–94
Predorsal length	362	357–367	378–402	404	372–381
Greatest depth of body	167	170–173	181–213	162	173
Pectoral fin length	344	311–325	295–338	325	282–331
Pelvic fin length	223	225–228	213–242	242	213–263
Caudal fin length	500	477–484	447–458	454	421
Pelvic fin insertion to anal fin origin	340	315–336	328–361	328	311–360

Measurements for the holotype and two male paratypes are given in Table 2.

A moderately stout species of *Callogobius*; head depressed; snout pointy; trunk moderately deep and somewhat compressed; interorbital narrow, about one-fourth diameter of eye; lower jaw protrudes, the gape oblique (Fig. 5), its length short, not reaching vertical from anterior margin of eye; nares close together in bulbous area, the anterior nares at tip of long tube, posterior nares at tip of short tube; tongue truncate to slightly rounded; gill opening moderate, extending below and anteriorly to pectoral base, reaching vertical below preopercle; first dorsal fin as high as second dorsal or anal fins; first dorsal fin free from second dorsal fin; origin of second dorsal fin above anal opening; adpressed pectoral fin extends posteriorly to or slightly beyond vertical through origin of anal fin; pectoral fin longer than deep, the posterior margin somewhat pointed; adpressed pelvic fin extends posteriorly about three-fourths distance from pelvic fin insertion to anal fin origin; pelvic frenum weak, the inner pelvic rays connected only at base; caudal fin elongate, longer than head length, the posterior margin moderately pointed. Genital papilla in male short, tapering to a point.

The dentition of the jaws small, pointed, canine-like teeth, in a patch of three to four rows in each jaw, those of outer row of both jaws largest; vomerine and palatine teeth absent.

The size, shape and distribution of the prominent fleshy papillose ridges are the same as those illustrated for *C. hastatus*. Short vertical rows of papillae are present on the mid-side of the trunk and a few short, irregular rows are above pectoral base; three rows of fine papillae parallel to the lower margins of the sixth and ninth caudal fin rays and the upper margin of the twelfth caudal ray.

The cephalic sensory pore and canal system includes the following pores: paired nasals, a single anterior interorbital (absent on 17.8 mm specimen), a single posterior interorbital, paired supraotics, paired anterior otics, paired posterior otics and paired intertemporals. The holotype has three preopercular pores on left side and two on right side. The preopercular area is damaged on the paratypes and the exact number of pores could not be determined.

Color in preservation.—Head and trunk sharply bicolored with dark saddles and bars on head, trunk and fins over a light body. Head with broad, dark brown stripe, equal in width to pupil or wider, extending from tip of snout and upturned lower jaw through middle of eye and dorsolaterally posteriorly to end of upper opercle. The head stripes on both sides join a broad, dark brown saddle that traverses the predorsal region to upper base of pectoral fins. Head stripe and predorsal saddle contiguous with upper pectoral fin base. Upper pectoral base and upper eight fin rays darkened to their extremities, as well as tips of longest pectoral rays, forming a crescent-shaped mark. Lower portion of pectoral fin and pelvic fin clear. Middle of head, cheeks and opercle with scattered dusky pigment in adults; these areas light colored in smaller specimens. The small specimens have a distinct dark spot, smaller than or equal to pupil, present near lower margin of opercle, indistinct in adults. Trunk with broad, dark brown saddle through first dorsal fin, commencing at base of third spine, passing through middle of fin and extending to lower portion of trunk as dark v-shaped mark; lower anterior portion and outer third of first dorsal fin clear. A broad, irregular band passes through upper anterior portion of second dorsal fin, encompassing bases of fourth to last rays, extending over trunk to anterior portion of caudal peduncle and posterior base of anal fin where it covers bases of seventh to last anal fin rays. The band extends out on anal fin to tips of fourth and fifth rays. Anterior lower portion of second dorsal fin clear; outer posterior portion of fin weakly pigmented in adults, clear in young. Anterior half and outer posterior portion of anal fin clear. A dark, wide bar at base of caudal fin, weakly joined in center with prominent, dark spear-shaped mark that covers most of caudal fin. Wide clear band, widest on upper and lower portions, nearly separates caudal bar and spear-shaped mark. Posterior margin of caudal fin clear. Development of spear-shaped mark appears to be ontogenetic. Smaller specimens have caudal bar well developed but remainder of fin lacks spear-shaped mark. The Palau specimen (27.8 mm SL) has a spear-shaped mark about one-half the size of that of holotype. The Philippine specimen (37.6 mm SL) has an intense dark streak on upper margin of caudal bar at procurrent rays. Another intensely dark streak occurs on spear-shaped mark at the fourth branched caudal ray of this specimen, and the Solomon Island specimen (17.8 mm) has a small brown spot in the same area. The middle areas of the light trunk interspaces have weak brown chromatophores, reduced or absent in smaller specimens. Papillose ridges on head and papillae rows on trunk are variously darkened.

Geographic distribution.—Taken in the Philippines, Banda Islands, New Guinea, Solomon Islands and the Palau Islands.

Ecology.—The holotype was captured in a bay at a depth between 1½ and about 6 m. The Palau paratype was taken over a bottom of white sand in a cave on a steep coral-rubble slope at about 20 m. The Banda Island paratype was taken in a dead and live coralline area at a depth of about 3–10 m.

Etymology.—The specific name is taken from the Latin, *clitella*, in reference to the dark body saddles.

Acknowledgments

We acknowledge the curators and staffs responsible for the fish collections at the Bernice P. Bishop Museum (BPBM), Honolulu, and the California Academy of Sciences (CAS), San Francisco, for loan and exchange of study materials and data. We are indebted to numerous individuals at many museums throughout the world for loan and exchanges of type-material and other collections for use in our continuing revisionary study of *Callogobius*. The illustrations were made by J. R. Schroeder.

Literature Cited

Lachner, E. A., and J. F. McKinney. 1974. *Barbuligobius boehlkei*, a new Indo-Pacific genus and species of Gobiidae (Pisces), with notes on the genera *Callogobius* and *Pipidonia*. Copeia (4):869–879.

———. In press. A revision of the Indo-Pacific fish genus *Gobiopsis* with descriptions of four new species (Pisces: Gobiidae). Smithsonian Cont. Zool. No. 262.

(JFM) Department of Biology, Old Dominion University, Norfolk, Virginia 23508; and (EAL) Department of Vertebrate Zoology, National Museum of Natural History, Washington, D.C. 20560.